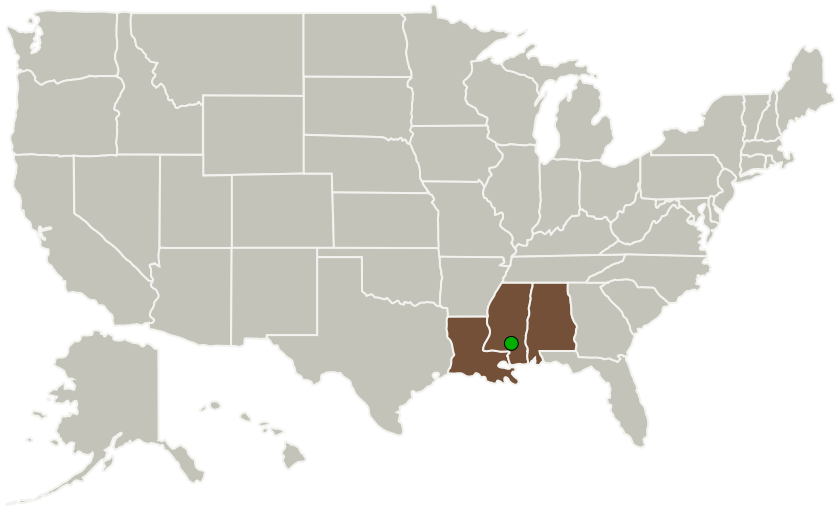
MEMS Based Solutions for an Integrated and Miniaturized Multi-Spectrum Energy Harvesting and Conservation System, Phase I

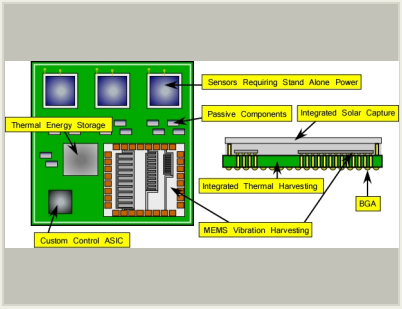
Completed Technology Project (2013 - 2014)

Project Introduction

The objective of this proposal is to develop three unique energy harvesting technologies utilizing our existing research strengths that will be of interest and utility to NASA applications and environmental conditions. By developing multiple technologies, NASA will be able to harvest energy from multiple waste energy sources, namely environmental vibrations, thermal energy, and solar flux. These devices will initially be developed separately, but all the while with an eye on the final integration into a single package at the end of Phase II. Since the research on these technologies has been ongoing, it is reasonable to develop an initial prototype of these technologies at the end of Phase I, with integration occurring in Phase II.

Primary U.S. Work Locations and Key Partners





MEMS Based Solutions for an Integrated and Miniaturized Multi-Spectrum Energy Harvesting and Conservation System

Table of Contents

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
Radiance Technologies, Inc.	Lead Organization	Industry	Huntsville, Alabama
Louisiana Tech University(LA Tech)	Supporting Organization	Academia	Ruston, Louisiana
Stennis Space Center(SSC)	Supporting Organization	NASA Center	Stennis Space Center, Mississippi

Primary U.S. Work Locations	
Alabama	Louisiana
Mississippi	

Project Transitions

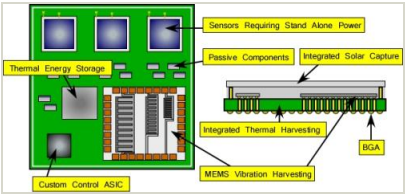
May 2013: Project Start

May 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140481)*

Images



Project Image
MEMS Based Solutions for an Integrated and Miniaturized Multi-Spectrum Energy Harvesting and Conservation System
(https://techport.nasa.gov/image/131358)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Radiance Technologies, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Heath A Berry

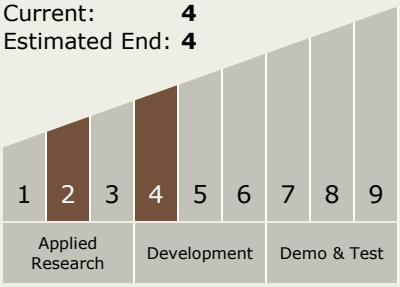
Co-Investigator:
Heath Berry

MEMS Based Solutions for an Integrated and Miniaturized Multi-Spectrum Energy Harvesting and Conservation System, Phase I

Completed Technology Project (2013 - 2014)

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.1 Power Generation and Energy Conversion
    - TX03.1.4 Dynamic Energy Conversion

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System